Algebraic Concepts
Lesson 24 Worksheet
Math for Standards

Name _____

Date _____

For each question, you need to find the answer and show your work. Each problem is worth 3 points: one for the correct answer and two for showing your work. For some problems, you may just need to write out how you know you have the correct answer.

1. Simplify: $\left(8x^2+4x-5\right)+\left(-6x^2-7x+3\right)$

2. A television screen is in the shape of a rectangle. If the length is $\left(6x+4\right)$ inches and the width is $\left(5x-1\right)$ inches, how many more inches is the length than the width?

3. In a right triangle, the length of the hypotenuse is $\left(7a-1\right)$ cm. The length of each leg is $\left(3a+5\right)$cm. Write an expression for the perimeter of the triangle and simplify.

4. Find the product: $\left(6e^3\right)\left(-4e^4\right)$

5. Find the quotient: $\dfrac{12x^2-8x}{-2x}$

6. A tank holds $\left(x^2+3x\right)$ gallons of water. Write an expression for the capacity of the tank in quarts and simplify. (Hint: How many quarts are in a gallon?)

7. A total of $\left(p^3-3q+r\right)$ tiles is needed to cover the floor of a room. Write an expression to describe the number of tiles needed for $2p$ rooms and simplify.

8. During one week, a movie theatre sold an average of $\left(30r+5\right)$ tickets per show. There were $\left(4r-1\right)$ shows. Write an expression for the number of tickets sold during the week and simplify.

9. There are $\left(21x^2-14x\right)$ days until the end of the year. How many weeks are there until the end of the year? (Hint: How many days are in a week?)

10. A store sold $\left(12y^2+18y\right)$ pounds of apples in $3y$ days. What was the average number of apples sold per day?

Open-Ended Question: Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!

A truck weighs $(15a+17)$ pounds.

A. How many pounds of cargo can be added to the truck to bring it to its maximum legal weight of $(21a-50)$ pounds?

B. If the maximum legal weight is 6,250 pounds, what is the value of a? What is the weight of the truck when it is carrying no cargo?